

Claims

We claim:

1. A lift belt comprising:

an elastomeric body having a width w and a
5 thickness t and having a pulley engaging surface;
the elastomeric body having an aspect ratio w/t
that is greater than 1;

a tensile cord contained within the elastomeric
body and extending longitudinally;

10 the pulley engaging surface having a ribbed
profile; and

the ribbed profile having a rib with an angle of
approximately 90°.

15 2. The lift belt as in claim 1, wherein the tensile
cord comprises a conductive material having a
resistance.

20 3. The lift belt as in claim 2, wherein the resistance
of the tensile cord varies to indicate a lifting
belt load.

4. The lift belt as in claim 1 comprising a plurality
of ribs.

25 5. The lift belt as in claim 4 having an end.

6. The lift belt as in claim 3 comprising a plurality
of tensile cords.

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7. The lift belt as in claim 3 further comprising:
a jacket on a surface opposite the pulley engaging
surface.

5 8. The lift belt as in claim 7, wherein the jacket
comprises nylon.

9. The lift belt as in claim 8 wherein a tensile cord
comprises a metallic material.

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10. The lift belt as in claim 9 wherein a tensile cord
comprises steel.

11. The lift belt as in claim 1 further comprising:
15 an electrical circuit connected to a tensile cord
for measuring a tensile cord load.

12. The lift belt as in claim 1 further comprising:
an electrical circuit for detecting a tensile cord
20 failure.

13. An elevator lift system comprising:
a belt having an elastomeric body having a width w
and a thickness t and having a pulley engaging
25 surface;
the elastomeric body having an aspect ratio w/t
that is greater than 1;
a tensile cord contained within the elastomeric
body and extending longitudinally;
30 the pulley engaging surface having a ribbed
profile;

the ribbed profile having a rib with an angle of approximately 90°; and

at least one pulley having a ribbed profile engaged with the pulley engaging surface.

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14. The lift system as in claim 13, wherein the tensile cord comprises a conductive material having a resistance.

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15. The lift system as in claim 14, wherein the resistance of the tensile cord varies according to a lifting belt load.

16. The lift system as in claim 13, wherein the pulley engaging surface comprises a plurality of ribs.

17. The lift system as in claim 16, wherein the belt has an end.

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18. The lift system as in claim 15 comprising a plurality of tensile cords.

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19. The lift system as in claim 15 further comprising: a jacket on a surface opposite the pulley engaging surface.

20. The lift system as in claim 19, wherein the jacket comprises nylon.

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21. The lift system as in claim 18 wherein a tensile cord comprises a metallic material.

22. The lift system as in claim 21 wherein a tensile cord comprises steel.

5 23. The lift system as in claim 13 further comprising:
an electrical circuit connected to a tensile cord
for measuring a tensile cord load.

10 24. The lift system as in claim 13 further comprising:
an electrical circuit for detecting a tensile cord
failure.

15 25. The lift belt as in claim 1 further comprising
fibers extending from the pulley engaging surface.

20 26. A lift system comprising:
a belt having an elastomeric body having a width w
and a thickness t and having a pulley engaging surface;
the elastomeric body having an aspect ratio w/t
that is greater than 1;
a tensile cord contained within the elastomeric body
and extending longitudinally;
the pulley engaging surface having a ribbed profile;
the ribbed profile having a rib with an angle of
approximately 90° ;
at least one pulley having a ribbed profile engaged
with the pulley engaging surface; and
30 an electric circuit for detecting a tensile cord
load and for controlling operation of the system.

27. A method of operating a lift system comprising the
steps of:

5 training a tensile cord over a pulley between a
motor and a load;

measuring an electrical resistance of the tensile
cord; and

controlling an operation of the motor according to
the electrical resistance.

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28. A lift belt comprising:

an elastomeric body having a width w and a
thickness t and having a pulley engaging surface;
the elastomeric body having an aspect ratio w/t
that is greater than 1;

a tensile cord contained within the elastomeric
body and extending longitudinally;

the pulley engaging surface having a ribbed
profile; and

the ribbed profile having a rib with a rib angle.

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29. The lift belt as in claim 28, wherein the tensile
cord comprises a conductive material having a
resistance.

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30. The lift belt as in claim 29, wherein the
resistance of the tensile cord varies to indicate a
lifting belt load.

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31. The lift belt as in claim 28, wherein the rib angle
is in the range of approximately 60° to 120° .

32. The lift belt as in claim 28, wherein the rib angle is approximately 90°.